

Management of Epulis Fissuratum Using Cryosurgery - A Case Report

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ABSTRACT

The aim of the present case report is to present a case showing the treatment of Epulis fissuratum in relation to an ill-fitting denture treated with nitrous oxide cryosurgery. Epulis fissuratum associated with an ill-fitting denture greatly hinders mastication and produces discomfort and pain to the patient. The nitrous oxide cryosurgery can be used effectively in its management, due to its excellent hemorrhage control and post-operative healing. A 64-year-old male reported with Epulis fissuratum in the maxillary anterior vestibular sulcus, which was associated with an ill-fitting denture. Nitrous oxide cryosurgery was used for the treatment of the lesion. During the procedure, nil hemorrhage was achieved, and the post-operative healing was satisfactory. Nitrous oxide cryosurgery, hence, can be used effectively as it has the boon of achieving excellent hemostasis, good healing with minimal post-operative edema and pain, and maintaining an aseptic environment. This technique can be effectively used in the treatment of Epulis fissuratum besides it can also be used in the treatment of other oral soft tissue pathologies achieving a plethora of benefits.

Key words: Epulis fissuratum, hemorrhage control, nitrous oxide cryosurgery, soft tissue lesion

INTRODUCTION


A poorly fitted prosthesis can give rise to a plethora of problems, notably Epulis fissuratum, residual ridge resorption, ulceration of the soft tissue, etc. Out of which, Epulis fissuratum is considered essential to be treated due to its masticatory hindrances. It is considered an overgrowth of intraoral tissue resulting from chronic irritation.[1] This mucogingival hyperplasia located over the soft tissues of the vestibular sulcus may be considered as a reactive condition of the oral mucosa to excessive mechanical pressure on the mucosa. Chronic trauma to the oral mucosa is considered a risk factor for the development of oral carcinoma. Studies have shown that the sharp edges of teeth or the ragged edges of ill-fitting

dentures have potential to cause oral carcinoma.^[2] Hence, ill-fitting dentures and its sequelae should not be overlooked.

The advent of various new surgical modalities has made their management much easier. One such novel technique is the cryosurgery. It is used in a number of dermatological and oral procedures because of its obvious advantage of excellent hemorrhage control and post-operative healing.

CASE REPORT

A 64-year-old male reported to our dental hospital, ITS Dental College, Murad Nagar, with the chief complaint of fibrous growth under and surrounding the borders of an ill-fitting maxillary denture which gradually grew in size in the past 2 months [Figure 1]. The denture was delivered to the patient about 2 years back. The patient also complained of pain and discomfort during mastication for the past 1 month. On visual inspection, the denture was ill-fitting with a fibrous mass in relation to the maxillary anterior vestibule extending from first pre-molar of either side. It extended superiorly up to the depth of the vestibule and was about 2.5 cm x 1.1 cm in size. On palpation,

Quick Response Code	Article Info:
	doi: 10.5866/2018.10.10091
	Received: 17-04-2018
	Revised: 27-05-2018
	Accepted: 12-06-2018
	Available Online: 10-06-2018, (www.nacd.in)© NAD, 2017 - All rights reserved

all the inspector findings were confirmed, and the lesion was soft in consistency and smooth in texture. No associated ulcerations were present at the time of examination.

Cryosurgery Technique

Treatment of the lesion was planned with Basco Super Deluxe Silencer Gun Model: CRYO-004. Following local anesthesia, the treatment was performed by a direct application of nitrous oxide with a Cryoprobe [Figure 2]. Lesion was exposed directly to three consecutive freeze-thaw cycles of 30 s each, beginning from the first premolar of the right side and moving toward the left side until the entire lesion was white. After the ice ball produced during freezing had completely thawed, the next freezing was performed. Thawing occurred spontaneously after 30–60 s. Additional two more cryosurgical sessions were performed at an interval of 1 month [Figure 3].

DISCUSSION

Epulis fissuratum in this case which greatly hindered the patient's comfort and phonetics was to be treated at the earliest to improve the patient's quality of life. Treatment of Epulis fissuratum can be of two types: Conservative and surgical.^[1] The conservative approach should be the first option as it is non-invasive. However, it is quite time-consuming. It includes removal of the acrylic flange followed by relining and rebasing after the complete healing of the lesion. The surgical approach includes using any of the following: The conventional scalpel, electro cauterization, soft tissue lasers, and liquid nitrogen cryosurgery. The surgical scalpel has been used from time to time for this soft tissue lesion. Electrocauterization was also used to remove Epulis fissuratum with advantages of hemorrhage control and post-operative healing. However, with the advent of lasers, the former has taken a back seat. Some of the lasers used in dentistry for this purpose is CO₂ laser, Er: YAG laser, Nd: YAG laser, diode laser, argon laser, and potassium-titanyl-phosphate- laser.^[3] Many studies have shown that the carbon dioxide lasers have more promising results than the scalpel.^[4] Better healing was observed with carbon dioxide laser than with the surgical scalpel between post-operative days 7 and 14. The advantages of carbon dioxide laser noted were its tissue protective technique, aseptic, minimal post-operative pain and edema, rapid wound healing, less recurrence rate, repeatability of the treatment, and minimal functional impairment in the oral cavity.^[5] However, major



Figure 1: Clinical picture showing fibrous growth under and surrounding the borders of an ill-fitting maxillary denture which gradually grew to the present size



Figure 2: Clinical picture showing the treatment that was performed by a direct application of nitrous oxide with a Cryoprobe



Figure 3: Clinical picture showing the response for the treatment after additional two more cryosurgical sessions that were performed at an interval of 1 month

disadvantage of using conventional surgery is that it fails to maintain an adequate sulcus depth which is important for achieving a correct peripheral seal for dental prosthesis retention and stability, leading to further recurrences.^[6] Recently, the liquid nitrogen cryosurgery has also been studied for its utility

in this regard. A recent study has shown that the liquid nitrogen cryosurgery has results equal to that of the carbon dioxide laser in terms of hemorrhage control and post-operative healing.^[4,6,7] The liquid nitrogen cryosurgery has been used successfully in a number of oral surgical and dermatological procedures. It is widely used in removing epidermal warts, molluscum contagiosum, hemangiomas, and treating chromomycosis and also in excision of skin malignancies.^[8,9] In oral surgical procedures, it has been implemented in the management of aggressive primary jaw lesions and minor soft tissue surgeries.^[10,11] It has the boon of achieving excellent hemostasis, without direct contact with tissue while maintaining an aseptic environment. It also provides good healing with minimal post-operative edema and pain.

The mechanism behind it is that as the cryosurgery is applied ice crystals are formed intracellularly, and progressive necrosis ensues. It is advocated such that repeated freezes, as used in our case report, results in rather large intracellular ice crystals and it is this increase in size which is more lethal to the cells. Another advantage is that cryosurgery is a painless procedure because of the immediate blockage of the nerve transmission in that area. Low temperatures have been shown to be capable of blocking neural transmission. It achieves hemostasis by means of necrosing the capillary ends by which it ligates the same. Studies have showed the increased presence of platelets in vessels treated with cryosurgery, denoting its role in hemorrhage control.^[12] Another valid advantage of cryosurgery is its low cost when comparing it with its counterpart techniques. Hence, all these properties of cryosurgery make it a best-suited technique in treating geriatric patients.

Clinical Significance

The advantages of cryosurgery over the conventional method make it an important asset in the armamentarium of an oral surgeon and have additional advantages of maintaining vestibular depth, controlling pain and perhaps dealing with lesions in sites that would be difficult to treat by other means. Hence, it can be used in the treatment of Epulis fissuratum, besides it can also be used in the treatment of other oral soft tissue pathologies achieving a plethora of benefits.

CONCLUSION

Dentists are treating increased number of elderly patients who have one or more significant

comorbidities, which may complicate treatment planning and reduce the ability to carry out post-treatment monitoring. The potential benefit of the treatment and overall prognosis is also important factors that we need to assess and reconcile in shaping treatment strategies. Hence, it mandates the modification of the treatment plan to suit the geriatric population and to decrease the likelihood of adverse events from dental innervations. The cryosurgery is one such excellent technique which translates benevolence to the geriatric patient.

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